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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,511	06/09/2005	Keun-Kyu Song	21C-0329	3156

23413 7590 11/18/2008

CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
ULLAH, ELIAS	
ART UNIT	**PAPER NUMBER**
2892	

NOTIFICATION DATE	DELIVERY MODE
11/18/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary	Application No.	Applicant(s)	
	10/538,511	SONG ET AL.	
	Examiner	Art Unit	
	ELIAS ULLAH	2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/11/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *1-3* is/are withdrawn from consideration.

5)☒ Claim(s) *16-18* is/are allowed.

6)☒ Claim(s) *4-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to a RCE filed on 9/11/2008.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/11/2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka (Muraoka, US 6,699,330) of record in view of Boyers et al. (Boyers, US 6,982,006).

With regard to claim 4, Muraoka teaches a method of forming a pattern the method comprising: forming a photoresist pattern including novolak (col. 16, lines 37 - 40, see also for photoresist made novolak Col. 9, lines 1-5) on a layer (col. 16, line 35-40, wherein wafer has oxide film) formed on a substrate 56 in (Fig. 7) and removing the photoresist pattern (col. 16, lines 50-55) using a stripping composition including an acetic acid and an ozone gas (col. 16, lines 44-50) included in the acetic acid in the form of a bubble (col. 16, lines 45-65).

Muraoka fails to teach a pH of the striping composition is about 1.6 to about 5.

However, Boyers teaches a pH of the striping composition is about 1.6 to about 5 (col. 21, lines 5-15, please note that ozone water solution can be include acetic acid see Col. 20, lines 65 and continued to col. 21 lines 1-3). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use “a pH of the striping composition is about 1.6 to about” teaching of Boyers in the forming a pattern of Muraoka because a the pH can influence metal corrosion rates and etching rate and ph adjusting chemicals suitable for electronic devices taught by Boyers in (col. 21, lines 5-15).

With regard to claim 5, Muroka teaches the stripping composition (col. 16, lines 44-50) is prepared by bubbling (col. 16, lines 45-50) the ozone gas in the acetic acid.

With regard to claim 6, Muraoka does not disclosed specific concentration of the ozone gas included in the acetic acid is about 80,000 to about 90,000ppm.

However, Muraoka teaches a general concentration of ozone gas included in the acetic acid (col. 16, lines 44-50). Accordingly, it would have been obvious to one of ordinary skill in art to use teaching Muraok in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. MPEP 2144.05.

With regard to claim 7, Muraoka teaches the removing the photoresist pattern by spraying the stripping composition onto the photoresist pattern to wet the photoresist pattern and rinsing the photoresist pattern (col. 16, lines 50-60).

With regard to claim 8, Muraoka teaches the photoresist pattern is rinsed using water (col. 17, lines 1-5).

With regard to claim 9, Muraoka teaches moving the substrate in a first direction during spraying the stripping composition onto the photoresist pattern and moving the substrate in a second direction opposed to the during spraying the stripping composition onto photoresist pattern (col. 16, lines 45-65).

4. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka (Muraoka, US 6,699,330) in view of Boyers et al. (Boyers, US 6,982,006) and further view of Mei et al. (Mei, US 6,864,529).

With regard to claims 11 and 12, Muraoka the layer (col. 16, line 35-40) and the photoresist pattern (col. 16, lines 37-40) as a mask to form a pattern and removing the photoresist pattern using the stripping composition (col. 16, lines 50-55).

Muraoka fails to teach the layer comprises a gate layer having a first gate wiring layer and a second gate wiring layer and etching gate wiring layer and the etching the first gate wiring layer to form a first gate wiring layer pattern and the gate layer comprises a Cr layer and an Al layer.

However, Mei teaches the layer comprises a gate layer (Fig. 5, 310, 414A-414C) having a first gate wiring layer 315 and a second gate wiring layer 318 and etching gate wiring layer and the etching the first gate wiring layer to form a first gate wiring layer pattern (Fig. 5) and the gate layer comprises a Cr layer and an Al layer (see floating layer 414 A- 414C, where in floating layer can be made of Cr and Al See Col. 4, lines 65-67). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use "the layer comprises a gate layer having a first gate wiring layer and a second gate wiring layer and etching gate wiring layer and the etching the first gate wiring layer to form a first gate wiring layer pattern" teaching of Mei in the forming a pattern of Muraoka and Boyers because the layer including gate layer and having first gate wiring and second gate wiring easily included Muraoka and Boyers structure to make external connection for a semiconductor device.

5. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muraoka (Muraoka, US 6,699,330) in view of Boyers et al. (Boyers, US 6,982,006), and

in view of Mei et al. (Mei, US 6,864,529) and further view of Degendt et al. (Degendt, 2002/0088478).

With regard to claims 13-15, Muraoka teaches the photoresist pattern is removed using the stripping composition (col. 16, lines 50-55) and Mei teaches first and second gate wiring layers using an etching (Fig. 5), but Muraoka and Boyers and further view of Mei fail to teach etching gas comprises a chlorine gas a contact hole is formed according to etching the first and second gate wiring layers.

However, Degendt teaches chlorine gas included in the striping composition to remove photoresist film [0014, 0016 wherein organic contamination is also photoresist [0080]. At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use “a striping composition included a chlorine gas” teaching of Degendt in the forming a pattern of Muraoka , Boyers and Mei because chlorine can act like an active agent in order to have an interaction of the gas phase and the liquid phase taking place on the surface of the semiconductor wafer as taught by Degendt in [0014].

Allowable Subject Matter

5. Claims 16-18 are allowed.

The following is an examiner's statement of reasons for allowance: with respect to claims 16-18, there is no prior art available or obvious motivation to combine elements of prior art which teach forming a semiconductor layer pattern and an ohmic contact pattern by etching the semiconductor layer and the doped amorphous silicon layer; forming a conductive material on the semiconductor layer pattern and on the ohmic

contact pattern; forming a data line, a source electrode and a drain electrode by etching the conductive material; forming a passivation layer on the data line, the source electrode and the drain electrode; forming a second photoresist pattern including novolak on the passivation layer; etching the passivation layer to form a contact hole partially exposing the drain electrode; removing the second photoresist pattern using a stripping composition including an acetic acid and an ozone gas included in the acetic acid as a bubble form; and forming and etching transparent conductive material layer to form a pixel electrode.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elias Ullah/
Examiner, Art Unit 2892

/Thao X Le/
Supervisory Patent Examiner, Art Unit 2892